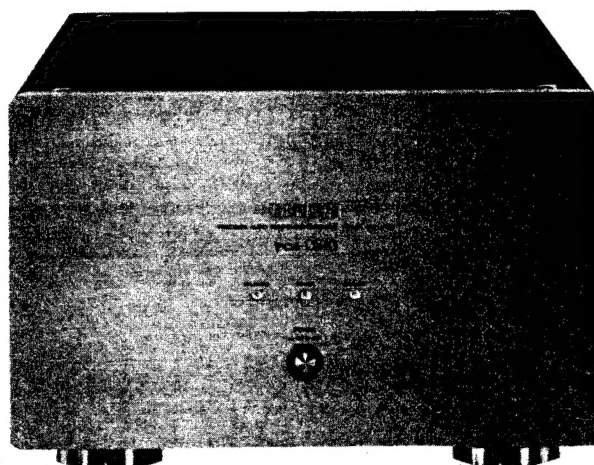


DENON

Hi-Fi Component

SERVICE MANUAL MODEL POA-S10 SOLID STATE MONAURAL POWER AMPLIFIER



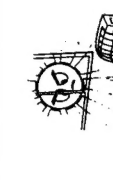

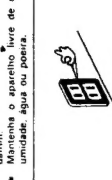
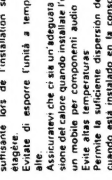

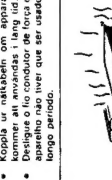
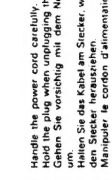


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NIPPON COLUMBIA CO., LTD.

NOTE ON USE/HINWEISE ZUM GEBRAUCH/OBSERVATIONS RELATIVES A L'UTILISATION
NOTE SULL'USO/NOTAS SOBRE EL USO/ALVORENS TE GEBRUIKEN/OBSERVERA
OBSERVAÇÕES QUANTO AO USO

 <ul style="list-style-type: none"> Do not let foreign objects in the set. Ne laissez pas d'objets étrangers dans l'appareil. È importante che nessun oggetto è inserito all'interno dell'unità. Il est important que aucun objet n'est introduit à l'intérieur de l'appareil. Laat geen vreemde voorwerpen in de apparaten vallen. Não deixe objetos estranhos no aparelho. 	 <ul style="list-style-type: none"> Keep the set free from moisture, water and dust. Holden Sie das Gerät von Feuchtigkeit, Wasser und Staub fern. É importante que l'appareil soit protégé de l'humidité, l'eau et la poussière. Tenete l'unità lontana dall'umidità, dall'acqua e dalla polvere. Laat geen vochtigheid, water of stof in het apparaat binnenvallen. Mantenha o aparelho livre de qualquer umidade, água ou poeira. 	 <ul style="list-style-type: none"> Avoid high temperatures. Evitez les températures élevées. Vermieden Sie hohe Temperaturen. Beachten Sie die hohen Temperaturen. Eviter des températures élevées. Evitar das temperaturas elevadas. 	 <ul style="list-style-type: none"> Do not let insecticides, benzene, and thinners in contact with the set. Né laissez pas d'insecticides, de benzène, de diluants ou de produits de nettoyage en contact avec l'appareil. Benzen oder Verdünnungsmittel in Berührung kommen lassen Sie das Gerät von Insektiziden, Benzin und Verdünnungsmitteln fern. Assicuratevi che l'unità non venga in contatto con insetticidi, benzolo o solventi. Assurez-vous que l'unité ne soit pas en contact avec des insecticides, du gazoline et des diluants ou des solvants. Laat geen insecticideverdelgende middelen, benzine of oplosverdunder met dit apparaat in contact komen. Não permita que inseticidas, benzena e dissolventes entrem em contacto com o aparelho. 	 <ul style="list-style-type: none"> Unplug the power cord when not using the set. Retirez le cordon d'alimentation quand vous n'utilisez pas l'appareil. Wenn das Gerät eine längere Zeit nicht verwendet werden soll, trennen Sie das Netzstecker heraus. Quando estiver instalado na tomada, desligue o equipamento por um longo período. Quando estiver instalado na tomada, desligue o equipamento por um longo período. 	 <ul style="list-style-type: none"> Handle the power cord carefully. Maneige le cordon d'alimentation avec précaution. Halten Sie das Kabel am Stecker, wenn Sie den Stecker herausziehen. Segure a tomada ao desconectar o fio. 	 <ul style="list-style-type: none"> Never disassemble or modify the set in any way. Né démontez ou modifiez l'appareil d'aucune manière ou d'une autre. Non smontare mai, né modificare l'equipage de nessun modo. Não desmonte ou modifique o aparelho de alguma forma. 	 <ul style="list-style-type: none"> Do not obstruct the ventilation holes. Né pas obstruer les trous d'aération. Do not obstruct the ventilation holes. Né pas obstruer les trous d'aération. Do not obstruct the ventilation holes. Né pas obstruer les trous d'aération. 	 <ul style="list-style-type: none"> Do not obstruct the ventilation holes. Né pas obstruer les trous d'aération. Do not obstruct the ventilation holes. Né pas obstruer les trous d'aération. Do not obstruct the ventilation holes. Né pas obstruer les trous d'aération.
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6

NOTA:
1. Mantenga siempre activado el interruptor de alimentación (POWER) en la unidad principal.
2. Conecte y desconecte la alimentación mediante la unidad de control remoto (PRA-S10, etc.).
3. Cuando la unidad vaya a estar fuera de uso por un periodo prolongado de tiempo, desconecte el cable de alimentación.

PRECAUCION:
Cuando solo el indicador STANDBY (leptera) está encendido, significa que la alimentación ha sido desconectada desde la unidad de control remoto. Conecte la alimentación mediante la unidad de control remoto del preamplificador (PRA-S10, etc.).

OPMERKING:
1. Zorg er altijd voor dat de stroomtoeslaar (POWER) van het hoofdtoestel, altijd op de juiste positie is.
2. Schakel de spanning in en uit met de afstandsbediening van de voorversterker (PRA-S10, enz.).
3. Trek het netkabel uit wanneer u denkt het toestel gedurende een lange periode niet te gebruiken.

WAARSCHUWING:
Als enkel de STANDBY-indicator brandt, betekent dit dat de spanning is uitgeschakeld met de afstandsbediening. Schakel de spanning in met de afstandsbediening van de voorversterker (PRA-S10, enz.).

OBSERVAÇÃO:
1. Mantenha sempre o interruptor de Corrente (POWER) na unidade principal ligado na posição de ativação.
2. Ligue e desligue a corrente a partir da unidade de controle remoto do pré-amplificador (PRA-S10, etc.).
3. Desconecte o fio de força quando inventar não utilizar a unidade por longo tempo.

PRECAUCION:
Se apenas estiver iluminado o indicador de aguardar (STANDBY), isto significa que a corrente está desligada a partir da unidade de controle remoto do pré-amplificador (PRA-S10, etc.).

PRECAUCIONES PARA LA INSTALACION
Deje al menos un espacio de 15 cm entre esta unidad y el amplificador de potencia o cualquier otro componente colocado abajo.

VOORZORGSMATREGELEN
Laat tenminste 15 cm ruimte tussen de toestel en de versterker of andere componenten die eronder geplaatst worden.

FÖRSIKTIGHETSÅTGÄRDER VID INSTALLATIONEN
Lämn ett utrymme på minst 15 cm mellan denna apparat och effektförstärkaren eller andra apparater, som ställs under apparaten.

CUIDADOS NA INSTALACAO
Deixe um espaço de pelo menos 15 cm entre esta unidade e o amplificador de potência ou qualquer outro componente colocado abaixo.

PRECAUCIONES PARA LA INSTALACION
Deje al menos un espacio de 15 cm entre esta unidad y el amplificador de potencia o cualquier otro componente colocado abajo.

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Laat tenminste 15 cm ruimte tussen de toestel en de versterker of andere componenten die eronder geplaatst worden.

FÖRSIKTIGHETSÅTGÄRDER VID INSTALLATIONEN
Lämn ett utrymme på minst 15 cm mellan denna apparat och effektförstärkaren eller andra apparater, som ställs under apparaten.

CUIDADOS NA INSTALACAO
Deixe um espaço de pelo menos 15 cm entre esta unidade e o amplificador de potência ou qualquer outro componente colocado abaixo.

NOTE:
1. Always keep the POWER switch on the main unit turned on.
2. Turn the power on and off from the remote control unit of the pre-amplifier (PRA-S10, etc.).
3. Unplug the power cord when you do not plan to use the unit for a long period of time.

CAUTION:
If only the STANDBY indicator is lit, this means that the power is turned off from the remote control unit of the pre-amplifier (PRA-S10, etc.).

HINWEIS:
1. Lassen Sie den Netzschalter (POWER) am Hauptgerät stets eingeschaltet.
2. Schalten Sie den Strom mit Hilfe des Fernbedienungsgerätes des Vorverstärkers (PRA-S10 o.ä.) ein und aus.
3. Trennen Sie das Netzkabel vom Netz ab, wenn Sie beabsichtigen, das Gerät über einen längeren Zeitraum hinweg nicht zu benutzen.

VORSICHT:
Wenn die STANDBY-Anzeige leuchtet, bedeutet dies, dass der Strom mit dem Fernbedienungsgerät des Vorverstärkers (PRA-S10 o.ä.) ausgeschaltet ist.

REMARQUE:
1. S'assurer que le commutateur d'alimentation (POWER) sur l'unité principale soit toujours dans la position activée.
2. Allumer et éteindre l'appareil avec la télécommande du préamplificateur (PRA-S10, etc.).
3. Débrancher le cordon d'alimentation lorsque l'appareil ne sera pas utilisé pendant une longue période.

ATTENTION:
Si seulement l'indicateur STANDBY (latente) est allumé, cela signifie que la courant est éteint à l'aide de la télécommande. Allumer l'appareil avec la télécommande du préamplificateur (PRA-S10, etc.).

NOTA:
1. Tenha sempre o interruptor da corrente (POWER) da unidade principal na posição de ativação.
2. Ligue e desligue a corrente usando o telecomando do pré-amplificador (PRA-S10, etc.).
3. Desconecte o fio de alimentação quando tiver intenção de não usar o aparelho por um longo período.

AVISO:
Se solo l'indicatore STANDBY (latente) è illuminato, ciò significa che la corrente è stata spenta usando il telecomando. Riaccendere la corrente usando il telecomando del preamplificatore (PRA-S10, etc.).

PRECAUTIONS FOR INSTALLATION
Leave at least 15cm of space between this unit and power amplifier or any other component placed below.

SICHERHEITSMASSNAHMEN BEIM EINBAU
Lassen Sie zwischen diesem Gerät und dem Leistungsverstärker bzw. einer anderen sich unter diesem Gerät befindlichen Komponente, einen Zwischenraum von 15 cm.

PRECAUTIONS D'INSTALLATION
Laissez une espace d'au moins 15 cm entre cet appareil et l'amplificateur de puissance ou n'importe quel autre appareil placé en-dessous.

PRECAUZIONI PER L'INSTALLAZIONE
Lasciare uno spazio di almeno 15 cm tra quest'unità e l'amplificatore di potenza oppure l'altro componente installato sotto la stessa.

VOORZORGSMATREGELEN
Laat tenminste 15 cm ruimte tussen de toestel en de versterker of andere componenten die eronder geplaatst worden.

FÖRSIKTIGHETSÅTGÄRDER VID INSTALLATIONEN
Lämn ett utrymme på minst 15 cm mellan denna apparat och effektförstärkaren eller andra apparater, som ställs under apparaten.

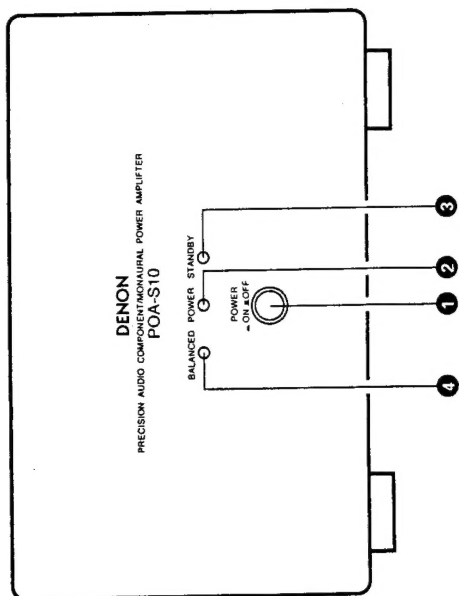
CUIDADOS NA INSTALACAO
Deixe um espaço de pelo menos 15 cm entre esta unidade e o amplificador de potência ou qualquer outro componente colocado abaixo.

PRECAUCIONES PARA LA INSTALACION
Deje al menos un espacio de 15 cm entre esta unidad y el amplificador de potencia o cualquier otro componente colocado abajo.

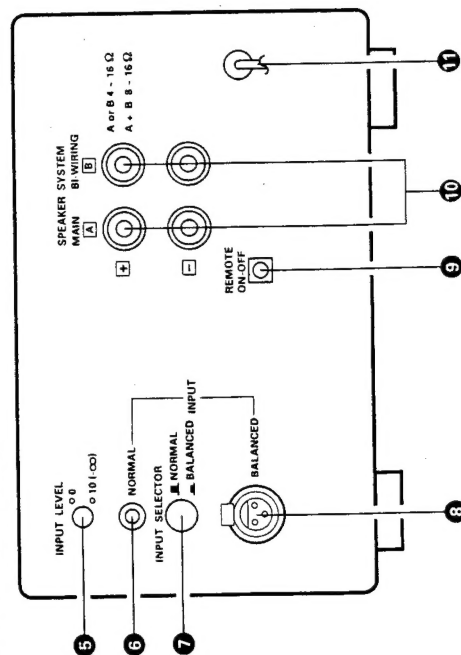
VOORZORGSMATREGELEN
Laat tenminste 15 cm ruimte tussen de toestel en de versterker of andere componenten die eronder geplaatst worden.

FÖRSIKTIGHETSÅTGÄRDER VID INSTALLATIONEN
Lämn ett utrymme på minst 15 cm mellan denna apparat och effektförstärkaren eller andra apparater, som ställs under apparaten.

FRONT PANEL
FRONTPLATTE
PANNEAU AVANT
PANNELLO ANTERIORE



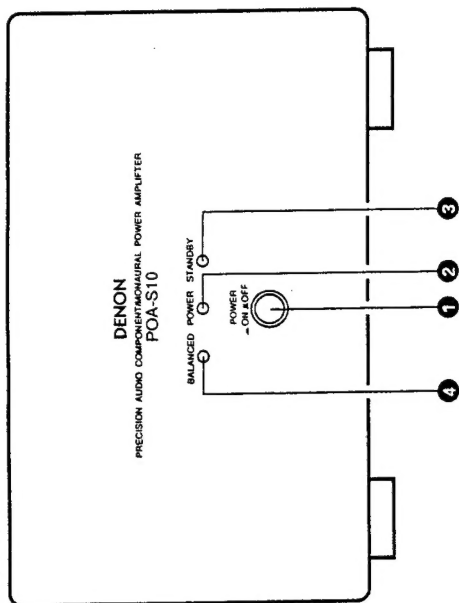
REAR PANEL
RÜCKWAND
PANNEAU ARRIERE
PANNELLO POSTERIORE



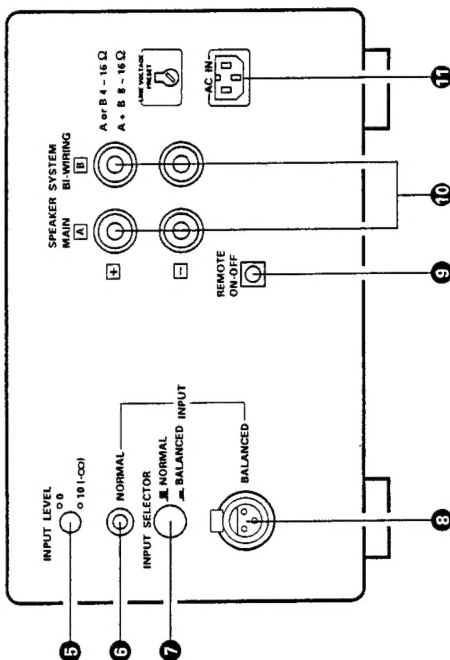
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[Asia Model Only]

FRONT PANEL



REAR PANEL



LINE VOLTAGE (Voltage select switch)

- The desired voltage may be set with the VOLTAGE SELECTOR KNOB on the rear panel using a screw driver.
- Do not twist the VOLTAGE SELECTOR KNOB with excessive force. It may be damaged.
- If the voltage select switch does not turn smoothly, see qualified serviceman.

4

NAMES AND FUNCTIONS OF PARTS

- 1 **POWER switch**
When this switch is pressed, the power is turned on, the POWER indicator 2 flashes for some seconds and then lights steadily, and stable operation condition is reached.
When this switch is pressed again, the power is turned off.
- 2 **POWER indicator**
- 3 **STANDBY indicator**
The set will not operate when this indicator is "on".
(1) When one end of a remote power cord is connected to the power amplifier and the other end is connected to the pre-amplifier (such as PRA-S10), and the pre-amplifier's power switch is "off", BY indicator 3 has gone off, the POWER indicator will blink for a few seconds until the amplifier has stabilized, then the unit will be in the normal state.
(2) When one end of a remote power cord is inserted in the DC input on the back panel and the other end is open (not connected).
- 4 **BALANCED indicator**
This lights when the INPUT SELECTOR switch 7 on the rear panel (refer to page 5) is set to BALANCED, indicating that a balanced input (XLR connector) is selected.
- 5 **INPUT LEVEL**
Adjust the input level with this knob.
- 6 **NORMAL INPUT terminal**
This is a normal input terminal (RCA connector). Connect it to the pre-amplifier's normal pre-out terminal.
- 7 **INPUT SELECTOR**
This switch selects between the balanced input and the normal input (RCA pin jack).
- 8 **BALANCED INPUT terminal**
BALANCED INPUT 8 lights when the balanced input is selected.
This is an XLR input terminal. Connect it to the pre-amplifier's XLR PRE-OUT terminal.
The polarities of the pins are as follows:
Pin 1: Ground (GND) Pin 2: Cold (-) Pin 3: Hot (+)
- 9 **REMOTE ON/OFF terminal**
This terminal is used for remote control of the pre-amplifier. A low-voltage DC current is emitted from the terminal to turn on the power of a DENON pre-amplifier (model PRA-S10, etc.).
- 10 **SPEAKER SYSTEM terminals**
Connect the speaker systems here.
- 11 **AC power cord**
Plug this cord into a wall power outlet.
- 12 **AC IN**
Connect this to a power outlet using the included AC power cord. (Asia Model Only)

PROTECTOR
Various protector circuits are included in this unit. POWER indicator 2 blinks when these circuits are operating.

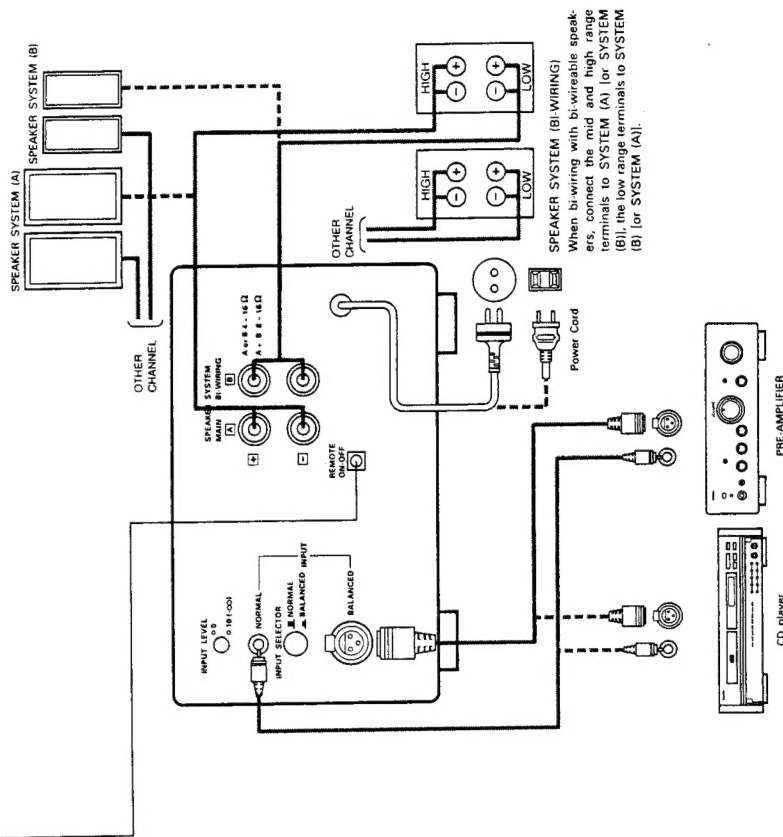
- (1) Muting time, which lasts for several seconds after the power is turned "on".
- (2) When the offset voltage of the power amplifier has drifted outside the prescribed range.
- (3) When the temperature of the power amplifier is abnormally high.
- (4) When a speaker terminal is shorted or a speaker's impedance is extremely low.

For cancellation of the operation of these protector circuits, set the POWER switch to OFF.
When the POWER indicator still flashes several seconds after the POWER switch has been switched on, refer to the section TROUBLESHOOTING and check for the cause.

CONNECTIONS

- **Notes on Connection**
 - Do not plug the power supply cord into the wall socket, until all the connections are complete.
 - Plug the pins in securely. An incomplete connection will cause noise generation.
 - Binding the pin plug to the power supply cord, or setting the pin cord close to the power supply transformer will cause humming or noise, and should be avoided.

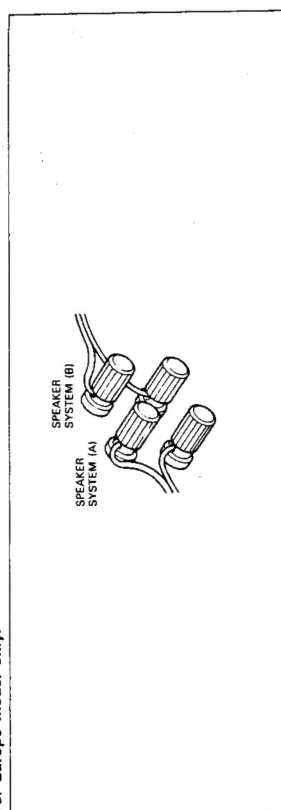
This terminal is for the remote power switch. The power amplifier's power can be turned "on" and "off" by connecting the remote power cord to the DC output terminal of the pre-amplifier (PRA-S10, etc.) and using the power switch on the pre-amplifier.



• **Connection to the speaker system**

- When connecting the speaker terminals to the speaker systems, make certain to connect the polarities correctly (+ to + and - to -). If the polarities are incorrect when the two are connected, the center area of the sound will be lacking, the positions of the musical instruments will not be clear, and the stereo directional sensitivity will be impaired.
- During connection, be careful that the center wires in the speaker cords do not protrude from the terminals to contact any other terminal, and that the central wires in the separate speaker cords do not contact each other.
- If only one speaker system is to be used, connect it to the SYSTEM (A) terminals.
- **Speaker impedance**
 - When only one of the A or B terminals is used, the speakers that are to be connected should have a nominal impedance of 4 to 16 Ω /ohm.
 - When the two sets (A + B) are to be used at the same time, use of speakers whose impedance is outside the range from 8 to 16 Ω /ohm will result in malfunction. Be careful not to let this happen.
 - Speakers with a lower impedance may cause the protective circuitry to operate.

For Europe model only.

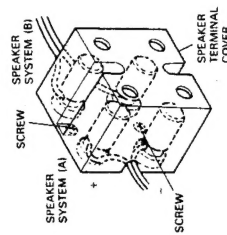


For U.S.A. and Canada model only. (Case of UL standardized articles)

WARNING!

This amplifier produces a large power output at the speaker terminals, which means that a dangerous amount of energy is generated and that there is the danger of electric shock. Please perform the speaker cord connections correctly as follows.

- 1) For the speaker connection cord, use a cord made with non-combustible insulation material with a VW-1 rating or a cord of the SPT-1 type or one with higher flexibility.
- 2) Use a screwdriver to take the screws holding the speaker terminal cover out.
- 3) Connect the speaker cord specified in 1) to the speaker terminals.
- 4) Tie the speaker cord, then pass it through the cutout hole in the speaker terminal cover.
- 5) Install the speaker terminal cover removed in 2).

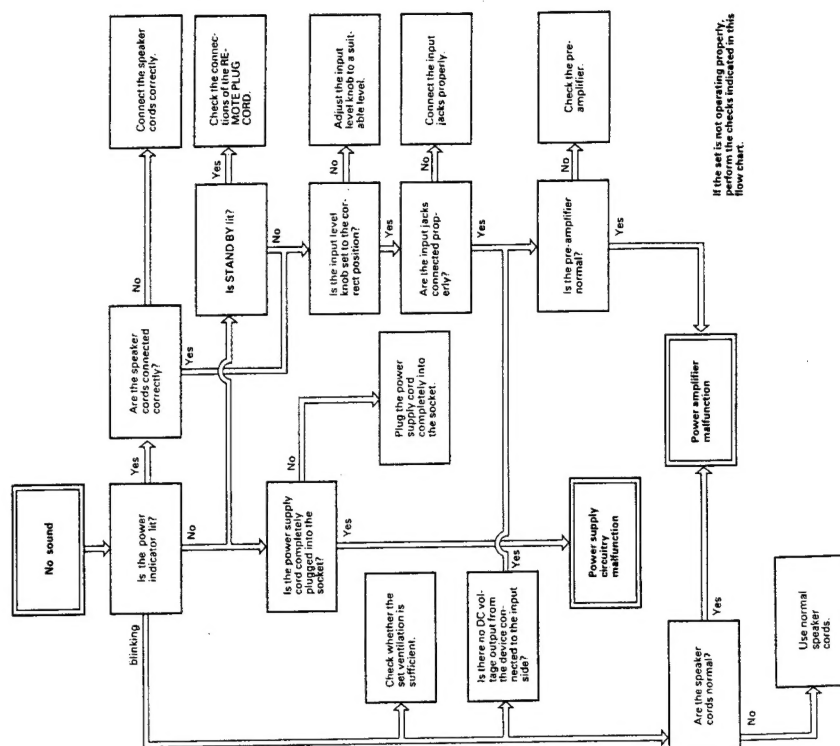


TROUBLESHOOTING

Before troubleshooting, be sure to check whether your audio system is really the source of the problem.

If you think the amplifier is out of order, first check the following one more time:

1. Are all the connections correctly made?
 2. Is the set being operated properly in accordance with the Operating Manual?
 3. Are the speakers and pre-amplifier being operated correctly?
- If the set does not operate properly, perform the checks indicated in the flow chart below. If none of the items listed apply to the difficulty, the amplifier is probably out of order. Turn off the power immediately, and contact the outlet where you purchased the amplifier or your nearest DENON dealer.



Technical Data (typical value)	Technische Daten (typische werte)	Caractéristiques techniques (valeur caractéristique)	
• POWER AMPLIFIER SECTION Rated Output Power: (8 Ω /ohm Load) 20 Hz to 20 kHz, T.H.D. 0.02% (4 Ω /ohm Load) DIN, 1 kHz, T.H.D. 0.7% * ² Continuous 150W per channel min into 8 Ω /ohms from 20 Hz to 20 kHz with no more than 0.02% total harmonic distortion Total Harmonic Distortion: (-3 dB at rated output, 8 Ω /ohms) (1 kHz) Intermodulation Distortion: (60 Hz/7 kHz: 4/1 at rated output, 8 Ω /ohms) Power Band Width: (8 Ω /ohms, THD 0.05%) Frequency Response: +0, -3 dB (at 1 W) Input Sensitivity: Normal in: Balance in: Input Impedance: Normal in: Balance in: Output Impedance: S/N Ratio: (IHF, A-weighting)(Normal) Output Terminals: Speakers A or B 4 Ω /ohm~16 Ω /ohm A + B 8 Ω /ohm~16 Ω /ohm Power Supply: Europe model: U.S.A. and Canada models: Asia Power Consumption: U.S.A. and Canada: IEC: Asia Dimensions: (Including control knobs and feet) Weight:	• LEISTUNGSENDEN VERSTÄRKER Nenn-Ausgangsleistung: * ¹ (an 8 Ω /Ohm) 20 Hz bis 20 kHz, T.H.D. 0.02% (an 4 Ω /Ohm) DIN, 1 kHz, T.H.D. 0.7% * ² Fortlaufend 150W pro Kanal min. zu 8 Ω /Ohm von 20 Hz bis 20 kHz mit einem Gesamtklirrfaktor von nicht mehr als 0,02% Gesamtklirrfaktor: (-3 dB bei Nennausgang, 8 Ω /Ohm) (1 kHz) Intermodulationsverzerrung: (60 Hz/7 kHz: 4/1 bei Nennausgang, 8 Ω /Ohm) Netzbandsbreite: (8 Ω /Ohm, Klirrfaktor 0,05%) Frequenzgang: +0, -3 dB (bei 1 W) Eingangsempfindlichkeit: Normaleingang: Symmetrischer Eingang: Eingangsimpedanz: Normaleingang: Symmetrischer Eingang: Ausgangsimpedanz: Rauschabstand: (IHF, A-bewertet)(Normal) Ausgangsklemmen: Lautsprecher A oder B 4 Ω /Ohm~16 Ω /Ohm A + B 8 Ω /Ohm~16 Ω /Ohm Netzteil: Europäisches Modell: Modell für USA und Kanada: Asien Stromaufnahme: USA und Kanada: IEC: Asien Abmessungen: (einschließlich Reglern und Füßen) Gewicht:	• PARTIE AMPLIFICATEUR DE PUISSANCE Puissance nominale: * ¹ (charge 8 Ω /ohms) 20 Hz à 20 kHz, D.H.T. 0.02% (charge 4 Ω /ohms) DIN, 1 kHz, D.H.T. 0.7% * ² 150W en continu par canal sur min. 8 Ω /ohms de 20 Hz à 20 kHz avec une distorsion harmonique totale de 0,02% ou moins. Distorsion harmonique totale: (-3 dB à la sortie nominale, 8 Ω /ohms) (1 kHz) Distorsion d'intermodulation: (60 Hz/7 kHz: 4/1 sortie nominale, sur 8 Ω /ohms) Bande passante: (8 Ω /ohms, DHT 0,05%) Réponse en fréquence: +0, -3 dB (à 1 W) Sensibilité d'entrée: Normal: Symétrique: Impédance d'entrée: Normal: Symétrique: Impédance de sortie: Rapport S/B: (IHF, pondéré A)(Normal) Bornes de sortie: Enceintes A ou B 4 Ω /ohms~16 Ω /ohms A + B 8 Ω /ohms~16 Ω /ohms Alimentation: Modèle pour l'Europe: Modèles pour les U.S.A. et le Canada: Asie Consommation: U.S.A. et Canada: IEC: Asie Dimensions: (avec les commandes et les pieds) Poids:	150W 300W 150W 0.002% 0.002% 5 Hz~50 kHz 1 Hz ~ 150 kHz 1 V 1 V 47 k Ω /kohms 10 k Ω /kohms 0.1 Ω /ohm (1 kHz) 120 dB AC 230 V/50 Hz AC 120 V/60 Hz AC110/220/230V,50/60 Hz 2.7 A 270 W 220 W 310 (W) x 207 (H) x 426 (D) mm (12-7/32" x 8-9/64" x 16-49/64") 15.7 kg (36 lbs 1 oz)

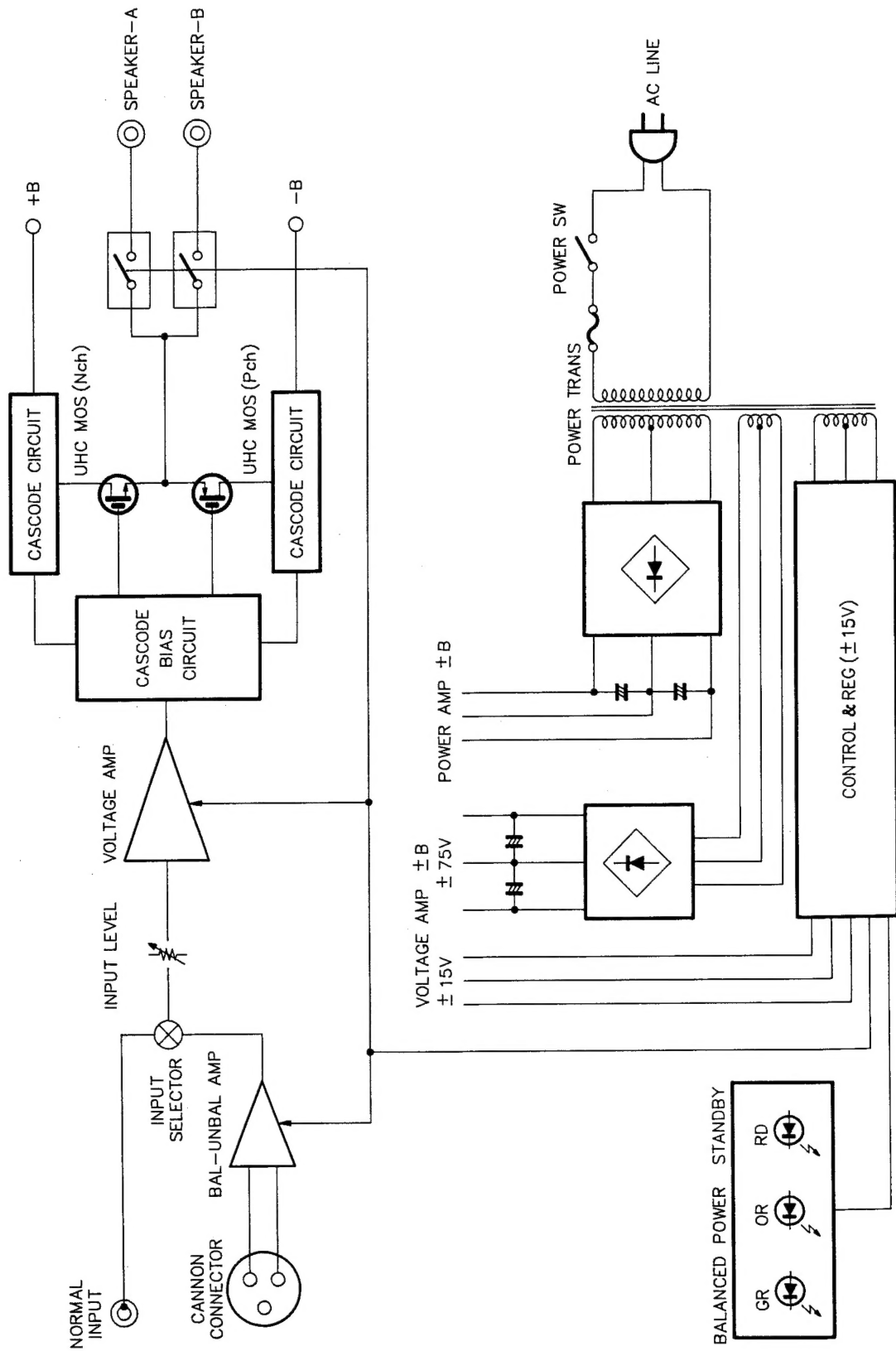
Note: *1 For Europe and Asia
 *2 For U.S.A. and Canada

Hinweis: *1 Für Europa und Asien
 *2 Für die USA und Kanada

Note: *1 Pour les Europe et le Asie
 *2 Pour les U.S.A. et le Canada

- Specifications and contents are subject to change without notice for purposes of improvement.
- Änderungen des Inhalts und der technischen Daten zum Zwecke der Verbesserung vorbehalten.
- Spécifications et contenu sont sujets à modification sans préavis.

BLOCK DIAGRAM

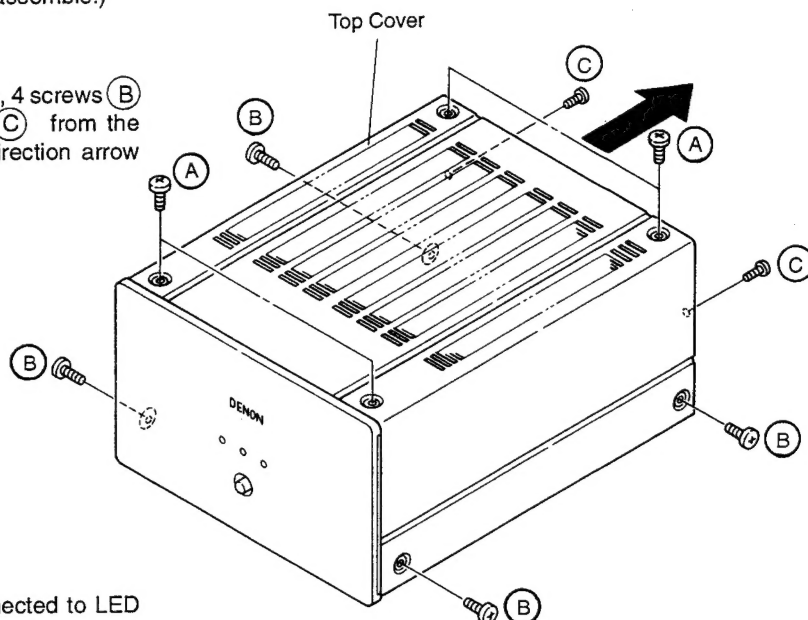


DISASSEMBLY INSTRUCTIONS

(For reassembling, do reverse manner as to disassemble.)

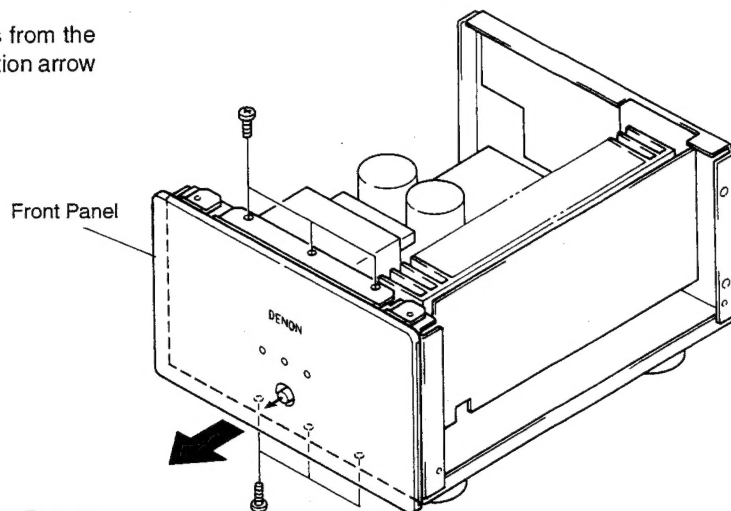
1. Top Cover

- (1) Remove 4 screws (A) from the upper side, 4 screws (B) from left and right side and 2 screws (C) from the backside, detach the top cover in the direction arrow shows.



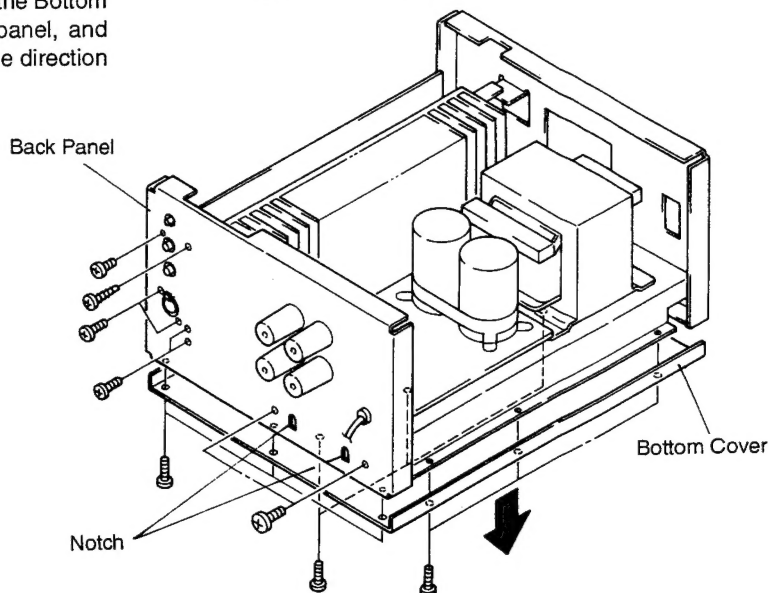
2. Front Panel

- (1) Remove connector of wire which is connected to LED P.W.B..
- (2) Unfasten 3 screws from the bottom, 3 screws from the top, and dismantle the Front Panel in the direction arrow shows.



3. Back Panel

Remove 9 screws from the bottom, and take out the Bottom Cover. Then remove 7 screws from the back panel, and detach the Back Panel out of the 2 notches in the direction as arrow shows.



ADJUSTMENT

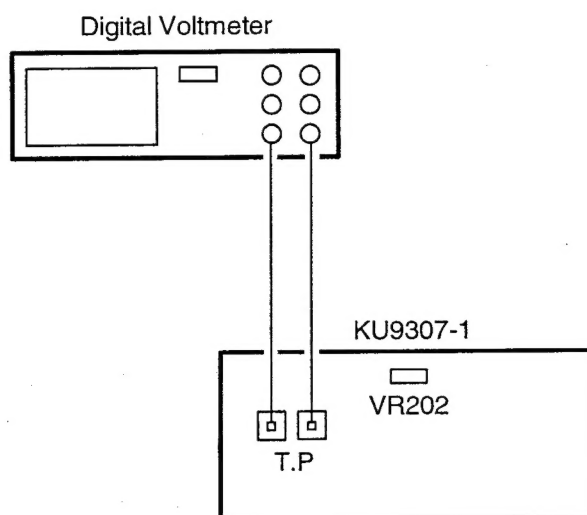
1. Adjustment of Idle Current (KU-9307-1)

● Setup

1. Keep the unit away from direct wind blown by an air-conditioner and an electric fan, and keep the under normal conditions.
Adjust range of ambient temperature to 15 – 30°C.
2. Set the following switches as follows:
 - **POWER (Power switch) to off**
 - **INPUT LEVEL (level control) to 0** (⤵)
 - **SPEAKERS (Speaker Terminal) to no load (Speakers Disconnected)**

● Adjustment

1. Connect DC Voltmeter to Test points (T.P) of KU9307-1.
2. Turn POWER Switch "ON".
3. Adjust VR202 so that the DC Voltmeter reads 40 ~ 50mV.
4. Then after 10 minutes warmup, readjust VR202 so that the DC Voltmeter reads $65 \pm 5\text{mV}$.



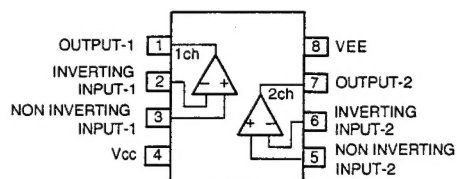
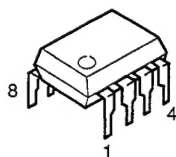
2. Adjustment of Neutral Point Voltage

- (1) Connect a digital voltmeter to the SPEAKER terminal.
- (2) Turn the unit power on.
- (3) Turn the LEVEL controls on the back panel fully clockwise (maximum).
- (4) Confirm the voltage on the meter indicates within $\pm 100\text{mV}$ value.

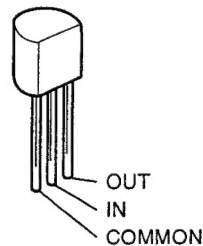
SEMICONDUCTORS

● IC

NJM2068ADA

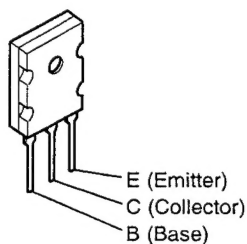


NJM79L15AT

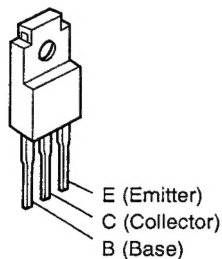


● TRANSISTORS

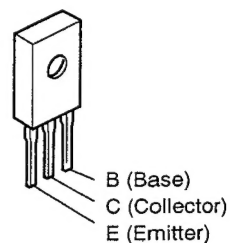
2SA1302 (R/O)
2SC3281 (R/O)



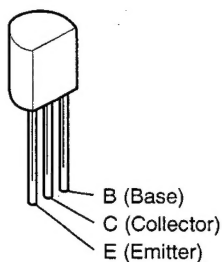
2SD1944
2SB1287



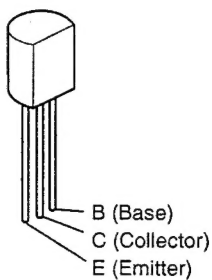
2SC4137



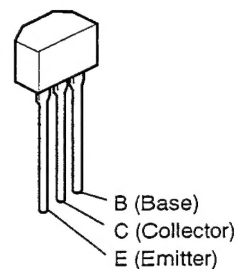
2SA988 (E/F)
2SC1841 (E/F)
2SC2878 (A/B)



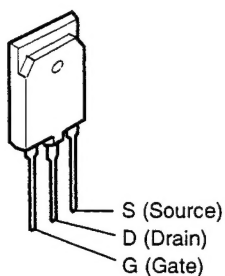
2SA1145
2SA1321
2SC3334



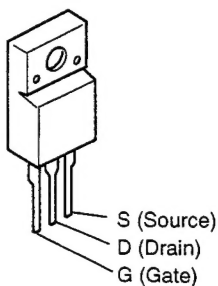
2SA1048 (GL)
2SC2458 (BL)



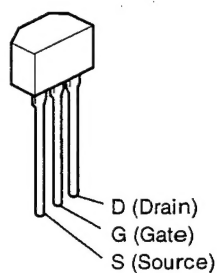
2SJ216



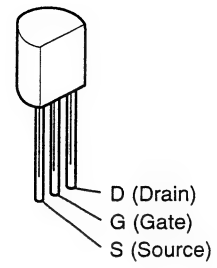
2SJ313
2SK2013



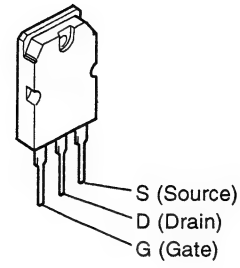
2SK381 (B/C)



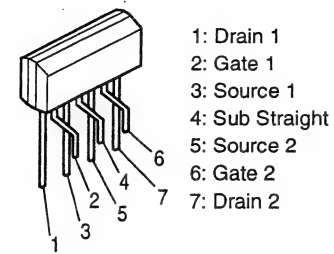
2SK373(Y)



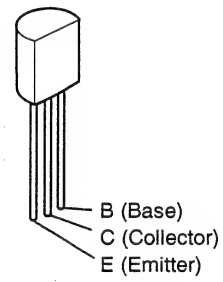
2SK1303



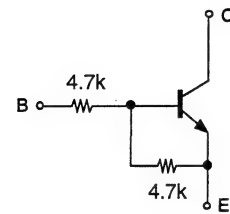
2SJ109



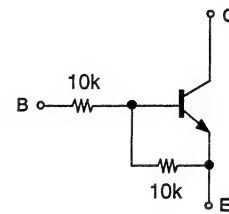
RN1201 (4.7K-4.7K)
RN1202 (10K-10K)
RN2202 (10K-10K)



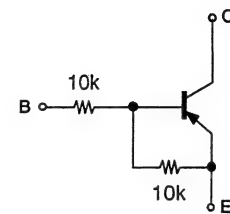
RN1201



RN1202

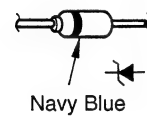


RN2202

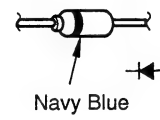


● DIODES

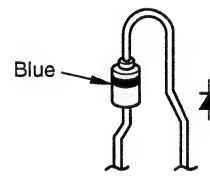
HZS3B-1
HZS7B-1
HZS16-1



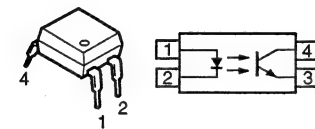
1SS270A



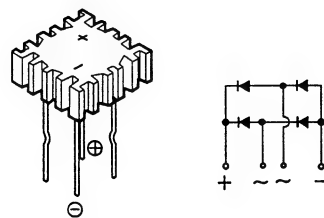
1SR35-200A



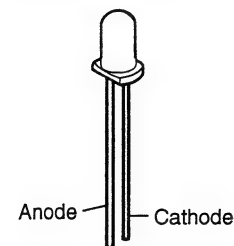
TLP521-1 (BL)



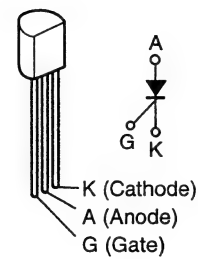
D5FB20 (4001)



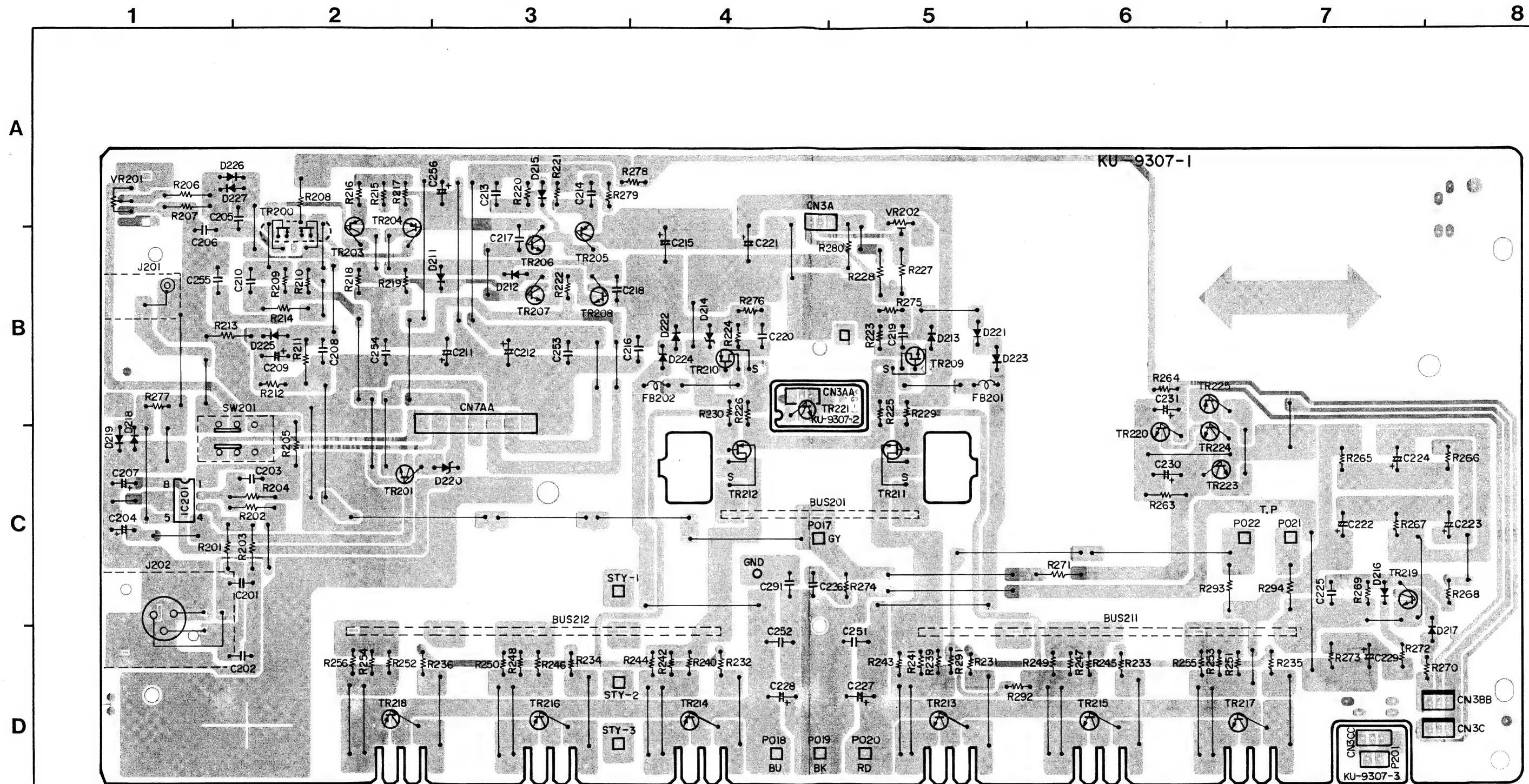
SEL-4214S
SEL-4414E
SEL-4914A



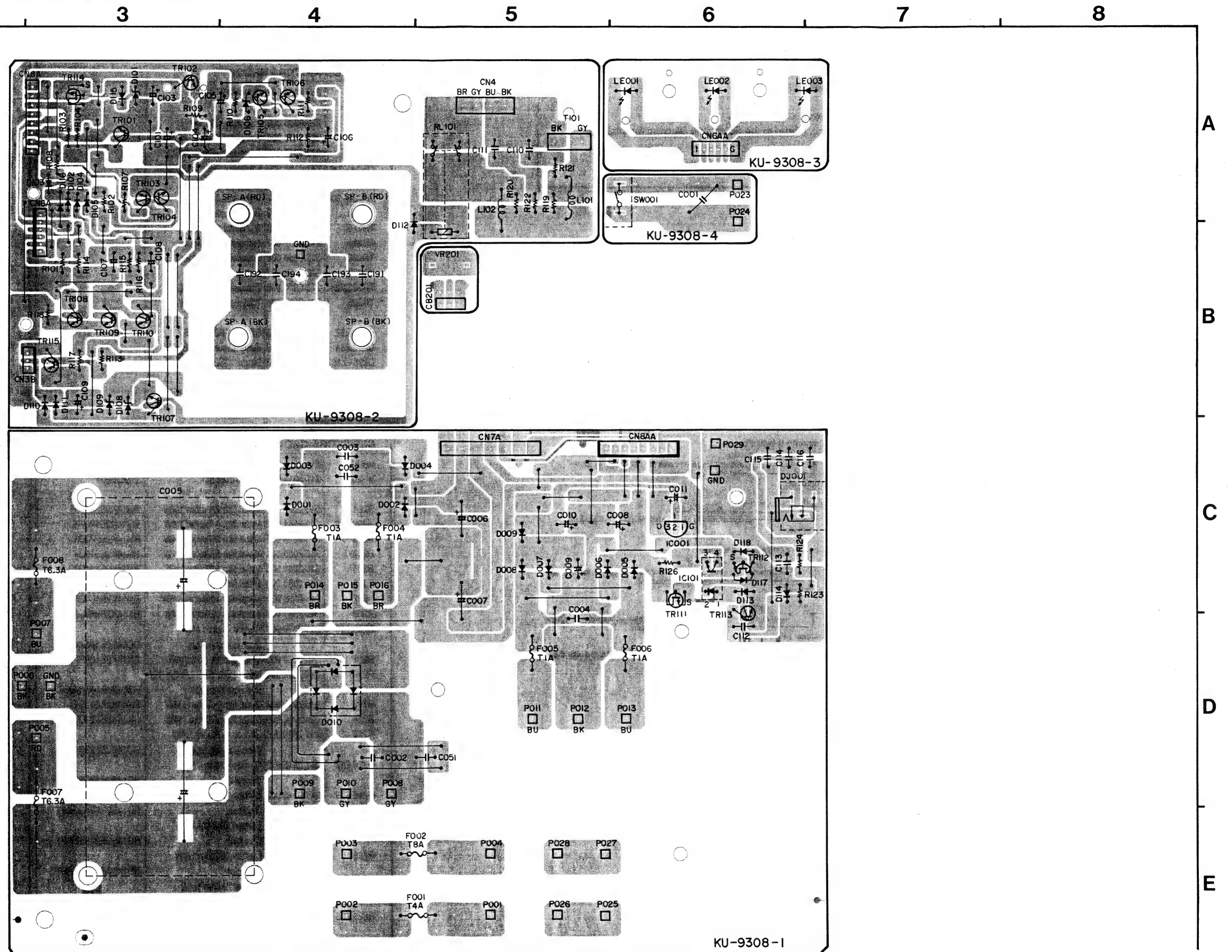
SFOR1A42
Thyristor



P. W.BOARD OF KU-9307 POWER AMPLIFIER UNIT



P. W.BOARD OF KU-9308 POWER SUPPLY & CONTROL UNIT



NOTE FOR PARTS LIST

- Part indicated with the mark "◎" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film $\pm 5\%$, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:

Parts marked with this symbol  have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

● Resistors

Ex.:

RN	14K	2E	182	G	FR
Type	Shape and performance	Power	Resistance	Allowable error	Others

RD : Carbon	2B : 1/8W	F : $\pm 1\%$	P : Pulse-resistant type
RC : Composition	2E : 1/4W	G : $\pm 2\%$	NL : Low noise type
RS : Metal oxide film	2H : 1/2W	J : $\pm 5\%$	NB : Non-burning type
RW : Winding	3A : 1W	K : $\pm 10\%$	FR : Fuse-resistor
RN : Metal film	3D : 2W	M : $\pm 20\%$	F : Lead wire forming
RK : Metal mixture	3F : 3W		
	3H : 5W		

* Resistance

$\overline{1} \overline{8} \overline{2} \Rightarrow 1800 \text{ ohm} = 1.8 \text{ kohm}$
Indicates number of zeros after effective number.
2-digit effective number.

• Units: ohm

$\overline{1} \overline{R} \overline{2} \Rightarrow 1.2 \text{ ohm}$
1-digit effective number.
2-digit effective number, decimal point indicated by R.

• Units: ohm

● Capacitors

Ex.:

CE	04W	1H	2R2	M	BP
Type	Shape and performance	Dielectric strength	Capacity	Allowable error	Others

CE : Aluminum foil electrolytic	0J : 6.3V	F : $\pm 1\%$	HS : High stability type
CA : Aluminum solid electrolytic	1A : 10V	G : $\pm 2\%$	BP : Non-polar type
CS : Tantalum electrolytic	1C : 16V	J : $\pm 5\%$	HR : Ripple-resistant type
CO : Film	1E : 25V	K : $\pm 10\%$	DL : For charge and discharge
CK : Ceramic	1V : 35V	M : $\pm 20\%$	HF : For assuring high frequency
CC : Ceramic	1H : 50V	Z : $\pm 80\%$	U : UL part
CP : Oil	2A : 100V	-20%	C : CSA part
CM : Mica	2B : 125V	P : $\pm 100\%$	W : UL-CSA type
CF : Metallized	2C : 160V	-0%	F : Lead wire forming
CH : Metallized	2D : 200V	C : $\pm 0.25\text{pF}$	
	2E : 250V	D : $\pm 0.5\text{pF}$	
	2H : 500V	= : Others	
	2J : 630V		

* Capacity (electrolyte only)

$\overline{2} \overline{2} \overline{2} \Rightarrow 2200\mu\text{F}$
Indicates number of zeros after effective number.
2-digit effective number.

• Units: μF .

$\overline{2} \overline{R} \overline{2} \Rightarrow 2.2\mu\text{F}$
1-digit effective number.
2-digit effective number, decimal point indicated by R.

• Units: μF .

* Capacity (except electrolyte)

$\overline{2} \overline{2} \overline{2} \Rightarrow 2200\text{pF} = 0.0022\mu\text{F}$
(More than 2) — Indicates number of zeros after effective number.
2-digit effective number.

• Units: μF .

$\overline{2} \overline{2} \overline{1} \Rightarrow 220\text{pF}$
(0 or 1) — Indicates number of zeros after effective number.
2-digit effective number.

• Units: pF.

• When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

P.W.B. ASS'Y PARTS LIST

KU-9307B/D/E POWER AMP UNIT

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP				CAPACITORS GROUP			
IC201	263 0466 009	IC NJM2068ADA		R227	245 2081 905	Metal film 3.6kohm 1/4W	RN14K2E362GT
TR200	275 0086 000	Transistor 2SJ109		R228	245 2068 902	Metal film 1kohm 1/4W	RN14K2E102GT
TR201	269 0023 903	Transistor RN1201(4.7K-4.7K) Built in Resistor		R229,230	241 2315 912	Carbon 10ohm 1/4W (Fusible)	RD14B2E100GFRST
TR202	273 0317 906	Transistor 2SC2458(BL)		R231~277	241 2387 940	Carbon 4.7ohm 1/4W (Non-burning type)	RD14B2E4R7JNBST
TR203,204	271 0168 900	Transistor 2SA1145(O)/(Y)		R239~256	244 2051 945	Metal oxide film 1ohm 1W (Non-burning type)	RS14B3A010JNBST
TR205	271 0201 906	Transistor 2SA1321		R263	245 2374 900	Metal film 1Mohm 1/4W	RN14K2E105FT
TR206~208	273 0332 907	Transistor 2SC3334		R265,266	241 2377 947	Carbon 100ohm 1/4W (Non-burning type)	RD14B2E101JNBST
TR209	275 0087 009	Transistor 2SK2013		R267	241 2376 977	Carbon 51ohm 1/4W (Non-burning type)	RD14B2E510JNBST
TR210	275 0088 008	Transistor 2SJ313		R268,269	241 2371 914	Carbon 1kohm 1/4W (Fusible)	RD14B2E102GFRST
TR219	273 0332 907	Transistor 2SC3334		R271	245 2104 905	Metal film 33kohm 1/4W	RN14K2E333GT
TR220	273 0360 908	Transistor 2SC2458(Y)		R272	244 2051 932	Metal oxide film 3.3kohm 1W (Non-burning type)	RS14B3A332JNBST
TR221	273 0436 007	Transistor 2SC4137		R274	244 2043 937	Metal oxide film 10ohm 1W (Non-burning type)	RS14B3A100JNBST
TR223,224	273 0317 906	Transistor 2SC2458(BL)		R293,294	245 2092 907	Metal film 10kohm 1/4W	RN14K2E103GT
TR225	271 0191 906	Transistor 2SA1048(GR)		R997	245 2044 900	Metal film 100ohm 1/4W	RN14K2E101GT
D211,212	276 0432 903	Diode 1SS270A TE		RESISTORS GROUP (not included Carbon Film $\pm 5\%$ 1/4W type)			
D213,214	276 0453 908	Zener Diode HZS3B-1TD		VR201	211 6106 003	Variable 100kohm (Input)	V0920V20MB104
D215~218	276 0432 903	Diode 1SS270A TE		VR202	211 6014 069	Adjust 200ohm	V09QB201
D219	276 0432 903	Diode 1SS270A TE		R201	245 2077 906	Metal film 2.4kohm 1/4W	RN14K2E242GT
D220	276 0478 909	Zener Diode HZS18-1TD		R202	245 2084 902	Metal film 4.7kohm 1/4W	RN14K2E472GT
D221~225	276 0432 903	Diode 1SS270A TE		R203	245 2078 905	Metal film 2.7kohm 1/4W	RN14K2E272GT
				R204	245 2085 901	Metal film 5.1kohm 1/4W	RN14K2E512GT
				R205	245 2044 900	Metal film 100ohm 1/4W	RN14K2E101GT
				R206	245 2068 902	Metal film 1kohm 1/4W	RN14K2E102GT
				R207	245 2116 906	Metal film 100kohm 1/4W	RN14K2E104GT
				R208	245 2081 905	Metal film 3.6kohm 1/4W	RN14K2E362GT
				R209,210	241 2379 987	Carbon 1kohm 1/4W (Non-burning type)	RD14B2E102JNBST
				R211	245 2374 900	Metal film 1Mohm 1/4W	RN14K2E105FT
				R212	244 2052 999	Metal oxide film 10kohm 1W (Non-burning type)	RS14B3A103JNBST
				R213	245 2055 902	Metal film 300ohm 1/4W	RN14K2E301GT
				R214	245 2052 905	Metal film 220ohm 1/4W	RN14K2E221GT
				R215	241 2380 905	Carbon 1.2kohm 1/4W (Non-burning type)	RD14B2E122JNBST
				R216,217	241 2315 912	Carbon 47ohm 1/4W (Fusible)	RD14B2E470GFRST
				R218,219	241 2315 983	Carbon 330ohm 1/4W (Fusible)	RD14B2E331GFRST
				R220,221	241 2371 901	Carbon 200ohm 1/4W (Fusible)	RD14B2E201GFRST
				R222	241 2313 901	Carbon 100ohm 1/4W (Fusible)	RD14B2E101GFRST
				R223,224	241 2371 914	Carbon 1kohm 1/4W (Fusible)	RD14B2E102GFRST
				R225,226	241 2378 962	Carbon 330ohm 1/4W (Non-burning type)	RD14B2E331JNBST
				OTHER PARTS			
				FB201,202	235 0049 900	Beads inductor	

KU-9308B/D/E POWER SUPPLY & CONTROL UNIT

Ref. No.	Part No.	Part Name	Remarks
P201	279 0034 041	Posistor(PTH9M04BD222TS2F333)	
SW201	212 1134 002	Push Switch	
J201	204 8248 000	1P Connector Base	
J202	203 5035 006	3P CANNON Connector	

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC001	263 0987 902	IC NJM79L15AT	
IC101	262 0874 009	Photo Coupler TLP521-1 (BL)	
TR101	273 0253 918	Transistor 2SC2878(A/B)TPE2	
TR102	274 0138 007	Transistor 2SD1944	
TR103	269 0025 901	Transistor RN1202(10K-10K)T	Built in Resistor
TR104,105	273 0317 906	Transistor 2SC2458(BL)TPE4	
TR106	269 0026 900	Transistor RN2202(10K-10K)T	Built in Resistor
TR107	269 0025 901	Transistor RN1202(10K-10K)T	Built in Resistor
TR108,109	273 0317 906	Transistor 2SC2458(BL)TPE4	
TR110	269 0025 901	Transistor RN1202(10K-10K)T	Built in Resistor
TR111,112	275 0042 905	Transistor 2SK373(Y)TPE2	
TR113	273 0317 906	Transistor 2SC2458(BL)TPE4	
TR114	275 0043 946	Transistor 2SK381(C)T	
TR115	269 0026 900	Transistor RN2202(10K-10K)T	Built in Resistor
D001-009	276 0553 905	Diode 1SR35-200A(T93X)	
D010	276 0356 005	Diode D5FB20(4001)	
D101	276 0477 900	Diode HZS16-1TD	
D102-105	276 0432 903	Diode 1SS270A TE	
D106	276 0465 909	Zener Diode HZS7B-1TD	
D107	279 0016 904	Thyristor SFOR1A42 TPE2	
D108,109	276 0465 909	Zener Diode HZS7B-1TD	
D110-115	276 0432 903	Diode 1SS270A TE	
LE001	393 9408 916	LED SEL-4414E TP6	
IE002	393 9408 929	LED SEL-4914A TP6	
LE003	393 9408 916	LED SEL-4214S TP6	
RESISTORS GROUP (not included Carbon Film $\pm 5\%$ 1/4W type)			
Δ R101	244 2055 996	Metal oxide film 1.2kohm 1W (Non-burning type)	RS14B3A122JNBST S
Δ R102	244 2051 932	Metal oxide film 3.3kohm 1W (Non-burning type)	RS14B3A332JNBST S
Δ R111	244 2055 996	Metal oxide film 1.2kohm 1W (Non-burning type)	RS14B3A122JNBST S
Δ R114	244 2055 996	Metal oxide film 1.2kohm 1W (Non-burning type)	RS14B3A122JNBST S
Δ R117	244 2055 996	Metal oxide film 1.2kohm 1W (Non-burning type)	RS14B3A122JNBST S
Δ R119,120	241 2387 940	Carbon 4.7ohm 1/4W (Non-burning type)	RD14B2E4R7JNBST
Δ R121	244 2050 904	Metal oxide film 22ohm 1W (Non-burning type)	RS14B3A100JNBST S
Δ R122	244 2052 928	Metal oxide film 47ohm 1W (Non-burning type)	RS14B3A470JNBST S
CAPACITORS GROUP			
Δ C001	253 8003 713	Ceramic 0.0047 μ F/400VAC	CK45E2GAC472MC
C002-004	256 1042 903	Metalized 0.1 μ F/250V	CF93A2E104KT
C005	254 6191 002	Electrolytic 15000 μ F	CE68W==153M==153M
C006,007	254 4477 003	Electrolytic 1000 μ F/100V	CE04W2A102M AVF
C008	254 4475 005	Electrolytic 470 μ F/35V	CE04W1V471M AVF
C009	254 4260 948	Electrolytic 1 μ F/50V	CE04W1H010MT SME

Ref. No.	Part No.	Part Name	Remarks
C010	254 4475 005	Electrolytic 470 μ F/35V	CE04W1V471M AVF
C011	254 4258 918	Electrolytic 10 μ F/35V	CE04W1V100MT SME
C101	254 4258 918	Electrolytic 10 μ F/35V	CE04W1V100MT SME
C103	254 4258 905	Electrolytic 4.7 μ F/35V	CE04W1V47MT SME
C104	254 4258 918	Electrolytic 10 μ F/35V	CE04W1V100MT SME
C105	254 4254 925	Electrolytic 33 μ F/16V	CE04W1C330MT SME
C106	254 4254 912	Electrolytic 22 μ F/16V	CE04W1C220MT SME
C107,108	254 3056 733	Electrolytic 3.3 μ F/50V (Bipolar)	CE04D1H3R3MBPT SME
C109	254 4258 918	Electrolytic 10 μ F/35V	CE04W1V100MT SME
C110,111	255 4228 996	Film 0.022 μ F/100V	CQ92P2A223JT
C112	253 1181 904	Ceramic 0.01 μ F/50V	CK45F1H103ZT
C113-116	253 9031 920	Ceramic 0.1 μ F/25V	CK45=1E104KT
C226	255 4235 785	Film 0.033 μ F/100V	CQ93P2A333JC NH
OTHER PARTS			
DJ001	204 8289 001	DC Power Jack	
L101,102	235 0068 004	Inductor (1mH)	
RL101	214 9003 005	Relay	
Δ SW001	212 1031 008	Power Switch (TV-5)	
Δ F001	206 1015 087	Fuse (4.0A)	Europe
Δ	206 1061 031	Fuse (4A/250V)	Asia
Δ	206 1046 014	Fuse (8A/125V)	U.S.A. and Canada
Δ F002	206 1061 060	Fuse (8A/250V)	Asia only
Δ F003-006	206 1015 029	Fuse (1A T)	Europe
Δ	206 1053 007	Fuse (1A/250V)	Asia
Δ	206 1039 034	Fuse (1A/125V)	U.S.A. and Canada
	513 9374 000	Fuse level (125V-1A)	U.S.A. and Canada
Δ F007,008	206 1036 011	Fuse (6.3A)	Europe
Δ	206 1061 057	Fuse (6.3A/250V)	Asia
Δ	206 1046 001	Fuse (6.3A/125V)	U.S.A. and Canada
	513 9374 055	Fuse level (125V-6.3A)	U.S.A. and Canada

PARTS LIST OF EXPLODED VIEW (POA-S10)

Ref.No	Part No	Part Name	Remarks	Ref.No	Part No	Part Name	Remarks
● 1	KU- 9307 -B	Power Amp Unit Ass'y	Europe	40	205 0438 015	1P Terminal(RED)	
● 1-1	KU- 9307 -D	Power Amp Unit Ass'y	Asia(Multi-Voltage)	● 41	477 0096 007	Push Rivet	Europe Only
● 1-2	KU- 9307 -E	Power Amp Unit Ass'y	U.S.A., Canada	● 42	462 0036 007	Terminal Cap	Except U.S.A., Canada
1-3	—	Power Amp Unit		● 43	462 0036 010	Terminal Cap	Except U.S.A., Canada
2	211 6106 003	Variable Resistor	(VR201)INPUT LEVEL (V0920V20MB104)	● 44	105 9253 108	Rear Panel	Europe
3	204 8248 000	1P Connector Base	(J201)INPUT normal	● 44	105 9253 111	Rear Panel	Asia(Multi-Voltage)
4	212 1134 002	Push Switch	(SW201)INPUT SELECT	● 44	105 9253 124	Rear Panel	U.S.A., Canada
5	122 9032 007	Blind Sheet		⚠ 45	206 2063 009	AC CordWith Plug	Europe
6	203 5035 006	CANNON Connector Base	(J202)INPUT balanced	⚠ 45	206 2130 000	AC CordWith Conn.&Plug	Asia(Multi-Voltage)
7	415 9078 015	Cord Holder		⚠ 45	206 2060 002	AC CordWith Plug	U.S.A., Canada
8				⚠ 46	445 0020 005	Cord Bush(4K-4)	Except Asia
9	417 9086 003	Power Radiator		● 47	105 9254 000	Bottom Cover	
10	273 0391 003	Transistor(2SC3281)	(TR213,215,217)	● 48	104 9044 000	Foot Ass'y	
11	271 0245 001	Transistor(2SA1302)	(TR214,216,218)	● 49	102 9047 001	Top Cover	
12	412 9131 115	Radiator Bracket(B)		● 50	122 9006 017	Spacer	
13	412 9130 213	Radiator Bracket(F)		● 51	461 0334 007	Rubber Sheet	Except U.S.A., Canada
14	445 0048 003	Cord Holder(L76)		⚠ 52	212 0363 007	Voltage Selector	Asia Only
15	445 0048 003	Cord Holder(L76)		⚠ 53	203 3962 003	AC-Inlet	Asia Only
16	417 9087 002	Radiator		● 54	461 9060 013	Rubber Sheet	
17	275 0081 005	Transistor(2SK1303)	(TR211)	● 55	461 9060 000	Rubber Sheet	U.S.A., Canada Only
18	275 0080 006	Transistor(2SJ216)	(TR212)	● 56	461 9060 000	Rubber Sheet	
19	KU- 9308 -B	P.S / Control Unit Ass'y	Europe	● 57	513 9362 038	Fuse Lavel	U.S.A., Canada Only
19-1	KU- 9308 -D	P.S / Control Unit Ass'y	Asia(Multi-Voltage)	● 58	513 9362 025	Fuse Lavel	U.S.A., Canada Only
19-2	KU- 9308 -E	P.S / Control Unit Ass'y	U.S.A., Canada	● 59	513 9376 008	Fuse Lavel	U.S.A., Canada Only
19-3	—	Power Supply Unit		60	513 8266 009	Dangerous Mark	U.S.A., Canada Only
19-4	—	Control Unit		61	LL- 6442 6	CSA Label	U.S.A., Canada Only
20	415 9078 002	Cord Holder		62	146 9124 005	Protector	U.S.A., Canada Only
21	204 8289 001	DC Power Jack	(DJ001)	● 63	515 8030 008	Preset Label	Asia Only
22	233 9671 001	Power Trasformer	Europe	● 64	415 9075 005	Rubber Sheet	
23	233 9672 000	Power Trasformer	Asia(Multi-Voltage)	● 65	122 0099 007	Spacer	
24	233 9675 007	Power Trasformer	U.S.A., Canada	● 66	122 9033 006	Spacer	
25	411 9133 204	Trasformer Chassis		101	473 7508 017	Screw 3 x 10 CBTS(P)-B	
26	412 9059 006	Bracket		● 102	443 0900 158	P.W.B. Support	
27	445 0048 016	Cord Holder(L50)		103	473 7015 018	Screw 3 x 8 CBTS(S)-B	
28	203 0275 007	1P Contact Ass'y		104	473 8007 025	3 x 8 CUP Screw	
29	215 9032 006	P.C.B. Holder(TT)		105	473 8007 038	3 x 14 CUP Screw	
30	411 9131 109	Front Chassis		106	470 0014 020	Screw 3x16 CPS SWW ZNP	
31	412 9431 006	Bracket		107	473 7007 000	Screw 4 x 8 CBTS(S)-B	
32	412 9432 005	Power Bracket		108	475 6010 007	Nut 5 N ZN	
33	212 1031 003	Power Switch(TV-5)	(SW001)	109	475 2005 003	SpringWasher 5 SW ZN	
34	113 9303 101	Power Button Ass'y		110	475 1006 016	Washer 5W BKNI	
35	144 9207 007	Front Panel		111	473 7002 034	Screw 3 x 6 CBTS(S)-B	U.S.A., Canada Only
36	143 9174 001	Lens (P)		112	471 9043 008	Special Screw	
37	203 6462 005	4P SDN-M5 Connector Cord					
38	415 9078 015	Cord Holder					
39	412 2814 060	Card Spacer(L=16)					
40	212 2814 015	Card Spacer(L=14)					
41	205 0438 002	1P Terminal(BLK)					

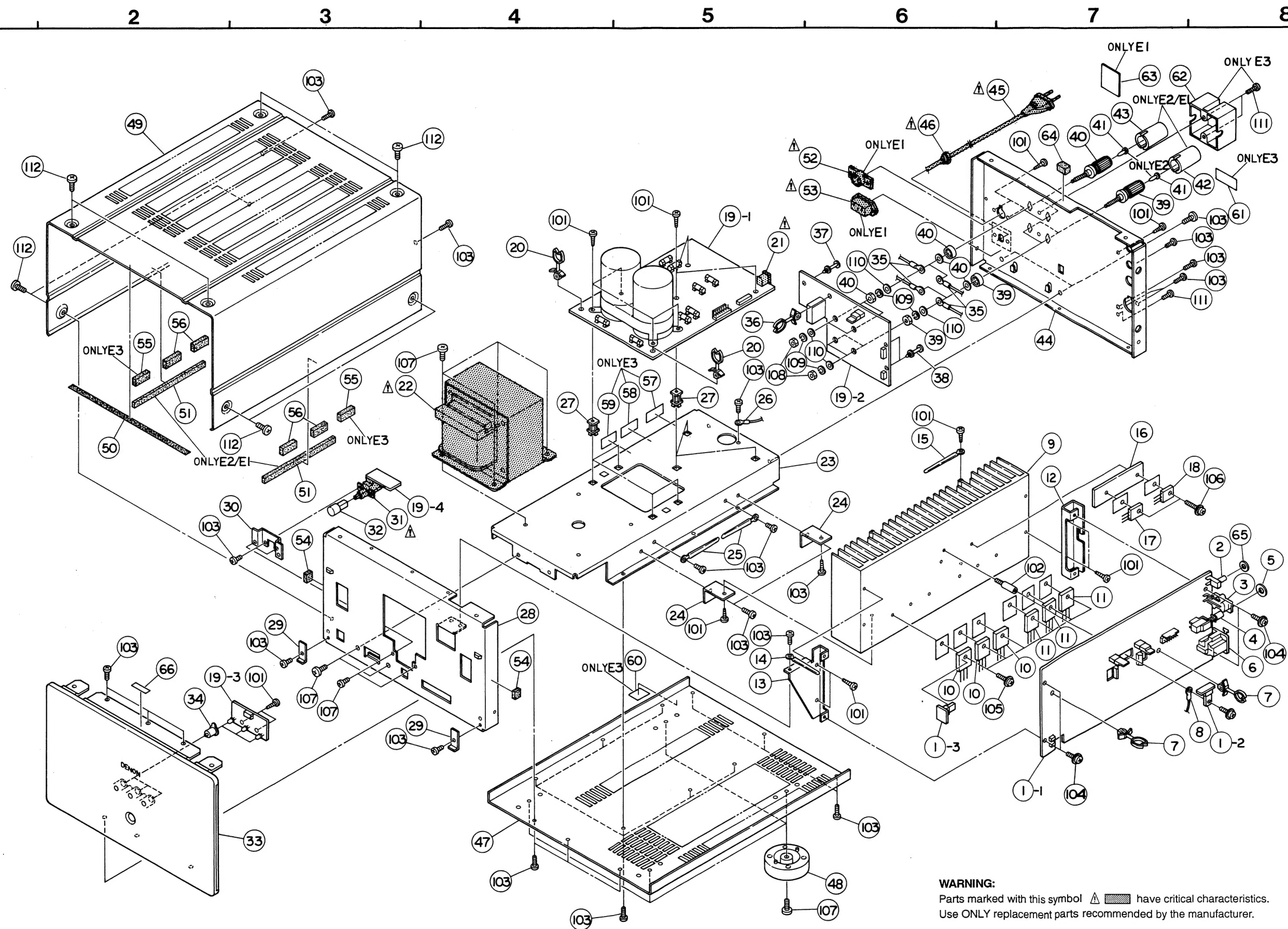
PARTS LIST OF PACKING & ACCESSORIES

Ref. No.	Part No.	Part Name	Remarks	Q'ty
	504 9102 003	Styrene Paper		1
	505 0075 051	Cabinet Cover		1
	503 9274 103	Cushion Ass'y		1
	501 9265 006	Carton Case		1
	505 8006 019	Envelope		1
	511 9384 007	Operating Instructions	Europe,U.S.A, Canada	1
	511 9403 001	Operating Instructions	Asia (Multi-Voltage)	1
	515 0671 106	Service Station List		1
	203 4442 001	Remote Plug Cord		1
	203 4451 005	3P Cannon Plug Cord		1
⚠	206 2130 000	AC Cord	Asia (Multi-Voltage)	1
⚠	202 0044 002	Plug Adaptor	Asia (Multi-Voltage)	1

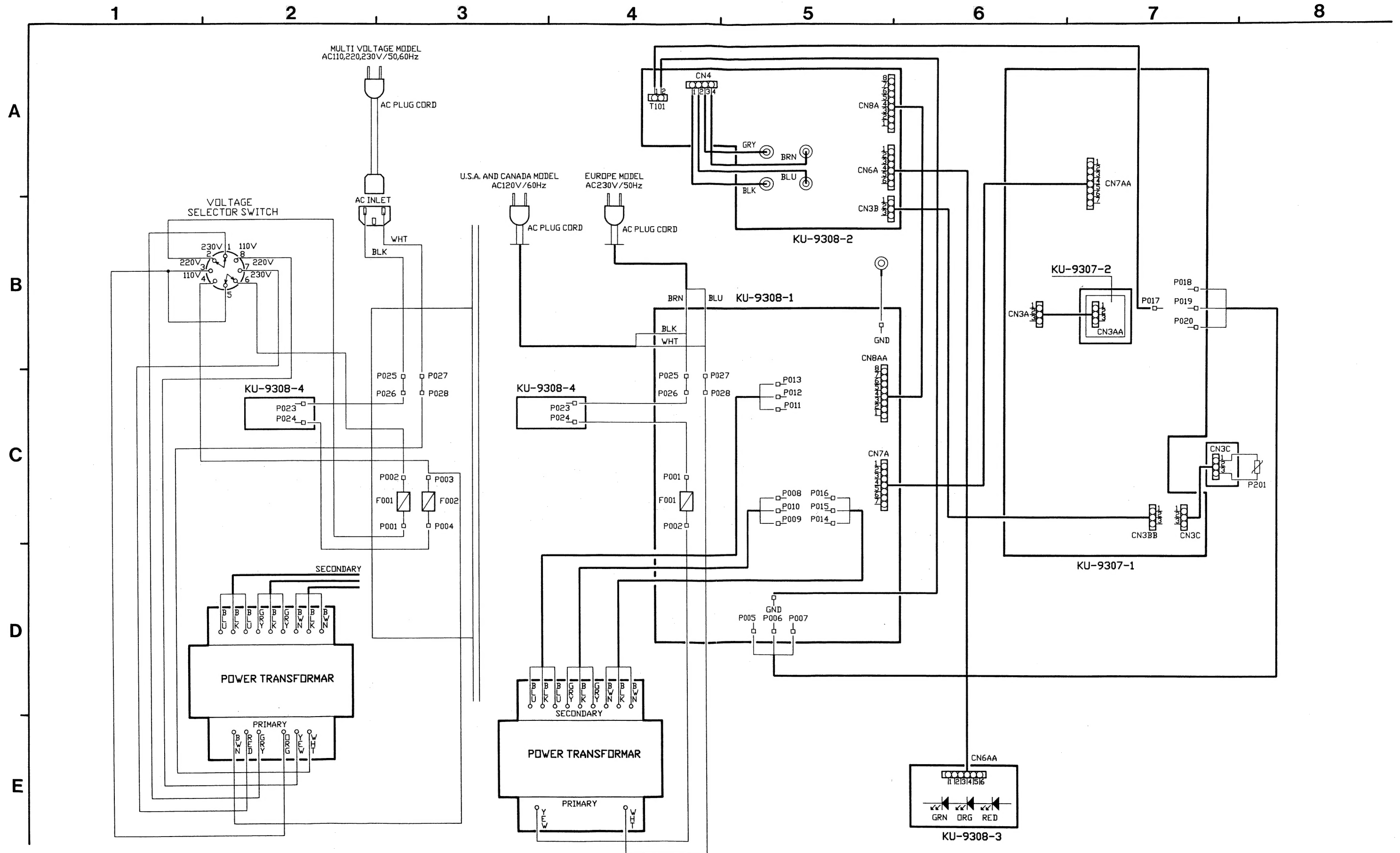
WARNING:

- Parts marked with " ⚠ " and/or shading have special characteristics important to safety.
Be sure to use the specified parts for replacement.
- Part indicated with the mark " ● " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.

EXPLODED VIEW

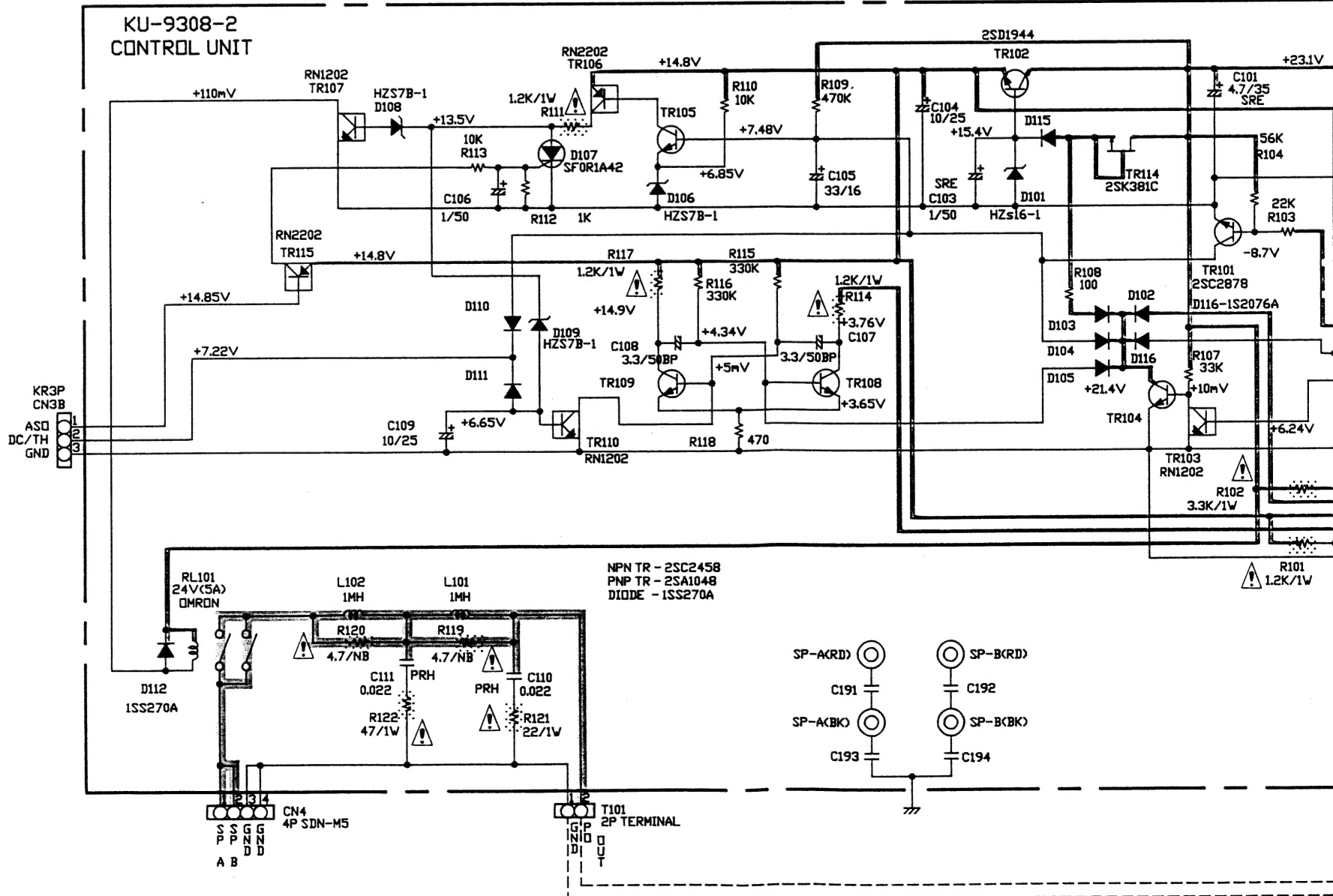
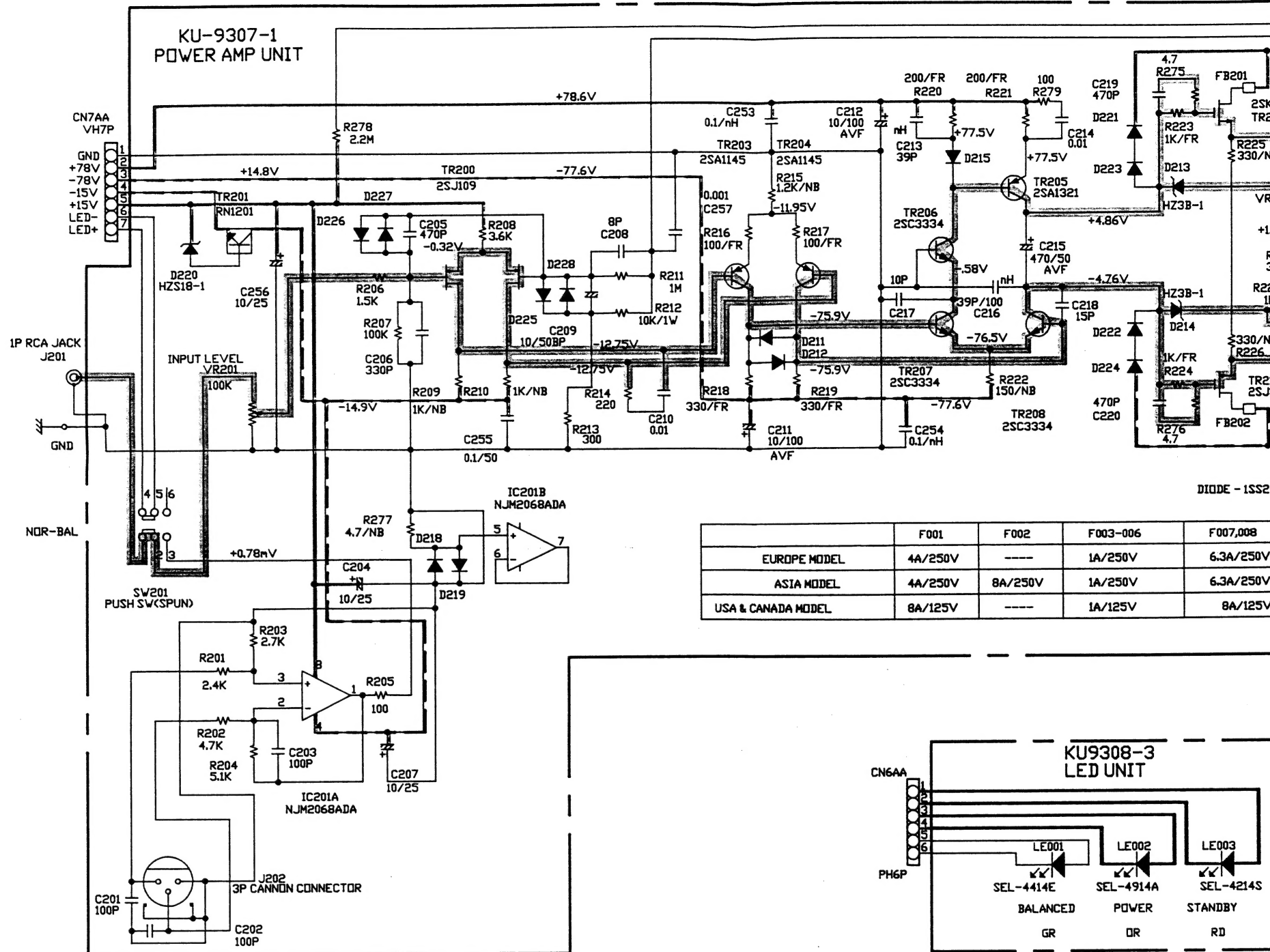


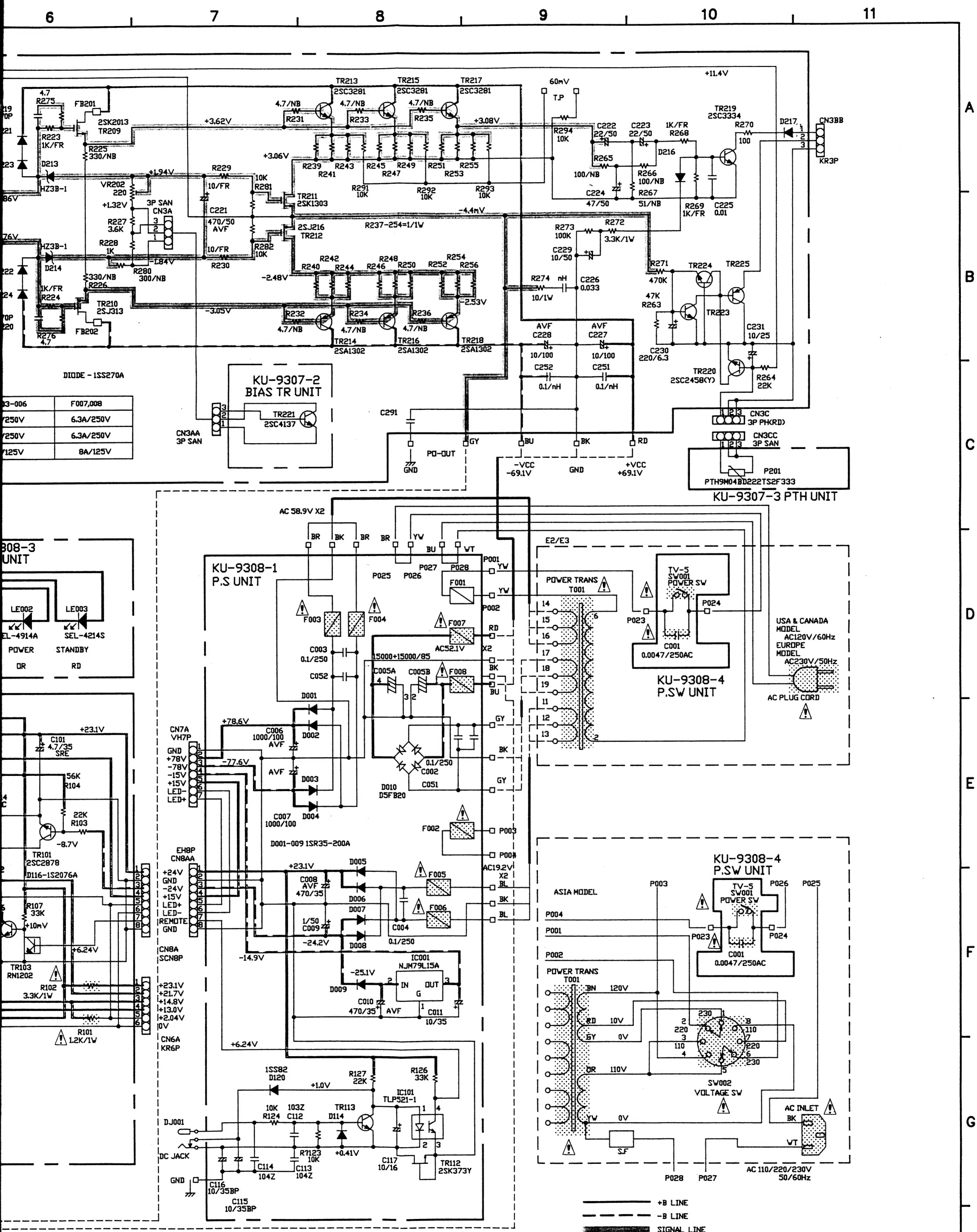
WIRING DIAGRAM



SCHEMATIC DIAGRAM

1 2 3 4 5 6





NOTES

ALL RESISTANCE VALUES IN OHM. K=1,000 OHM, M=1,000,000 OHM

ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD

EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.

CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

WARNING:

Parts marked with this symbol have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

CAUTION:

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamperes, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

WARNING:

DO NOT return the unit to the customer until the problem is located and corrected.